

Remarks:

In the July 10, 2008, Office Action, the Abstract of the Disclosure was objected to as allegedly being longer than 150 words. Claims 15-17 were objected to under 37 CFR Section 1.75(c) as being in improper form. Claim 28 was rejected under 35 U.S.C. Section 112, second paragraph, as being indefinite.

On the merits, Claims 4-11, 14, 18, 24, and 27 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Pike et al (U.S. Patent No. 3,944,947). Claims 1, 2, 19, and 21 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Ozaki et al. (U.S. Patent Application Publication No. 2002/0090172). Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by Okazaki et al. (Japanese Published Patent Application No. 2003-344609). Claims 9-12 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Munroe et al. (Great Britain Patent No. 1,502,801).

Claims 1, 2, and 19-23 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Noboru (Japanese Published Patent Application No. 61-235813). Claims 4-8, 10, 12, 19, 20, 23, and 26 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Taylor (U.S. Patent No. 5,543,251). Claims 18, 19, and 21-23 were rejected under 35 U.S.C. Section 102(b) as being anticipated by Kessler (European Patent Application Publication No. 601485). Claims 24 and 26 were rejected under 35 U.S.C. Section 102(e) as being anticipated by Yamanaka et al. (U.S. Patent No. 6,922,288).

Claim 25 was objected to as being dependent upon a rejected base claim, but was indicated to be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claim 28 was indicated to be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. Section 112, 2nd paragraph, and to include all of the limitations of the base claim and any intervening claims.

The Abstract of the Disclosure has not been amended since it is 144 words -- which is less than the 150 word limit. Accordingly, reconsideration of this issue by the Examiner is respectfully requested.

Applicants thank the Examiner for the indication of patentable subject matter in Claims 25 and 28. Claim 25 has been written in independent form by incorporating all of its limitations into Claim 24, upon which it was formerly independent (there were no intervening claims). Claim 28 has also been written in independent form, incorporating all of the limitations of base Claim 24 (there were no intervening claims). A portion of Claim 28 was rewritten to overcome the Section 112, second paragraph, issue, and Applicants believe that it is clearer and overcomes this deficiency. Applicants thank the Examiner for noting this issue.

Claim 13, which was indicated in the Office Action Summary as being rejected, but was not properly rejected in the body of the July 10, 2008, Office Action on any specific basis, has been written in independent form, incorporating all of the limitations of old base Claim 9 as well as all of the limitations of intervening Claim 10. Thus, Claim

13 has not been changed in substance, and accordingly if it is again rejected the Office Action rejecting it may not be made final.

Basis for the amendments to Claim 1 is found in the Specification in paragraphs 0011, 0012, 0021, 0025, 0027, and 0032. Basis for the amendments to Claim 2 is found in the Specification in paragraph 0026. Basis for the amendments to Claim 3 is found in the Specification in paragraph 0029. Basis for the amendments to Claim 4 is found in the Specification in paragraphs 0011, 0012, and 0027. Basis for the amendments to Claim 9 is found in the Specification in paragraphs 0011, 0012, and 27. Basis for the amendments to Claim 13 is found in the Specification in paragraphs 0011, 0012, 0026, and 0027. Basis for the amendments to Claim 15 is found in the Specification in paragraph 0011. Basis for the amendments to Claim 16 is found in the Specification in paragraph 0020. Basis for the amendments to Claim 18 is found in the Specification in paragraphs 0011, 0012, 0021, 0025, 0027, and 0032. Basis for the amendments to Claim 24 is found in the Specification in paragraphs 0012 and 0020. Basis for the amendments to Claim 28 is found in the Specification in paragraphs 0011, 0012, 0021, 0025, 0027, and 0032.

All of the rejections on the merits are believed to be moot in view of the fact that Applicants have extensively revised each of the independent claims in the patent application (Claims 1, 4, 9, 13, 18, 24, and 28) (with the exception of Claim 13, which, as mentioned above, has been written in independent form since it was not rejected properly on any specific basis) to include additional limitations related to the notches in the

fastener structure and the sealed peripheries of the fastener structure. None of the cited references teach or suggest the claimed construction taught by the amended independent Claims 1, 4, 9, 18, 24, and 28, and as such these claims appear to be patentable at this time. Accordingly, there was (and is) no need to discuss the additional limitations of the dependant claims at this time.

With regard to the cited prior art, it may be helpful to make a few comments. The Pike et al. reference discloses a laser amplifier system comprising plural parallel paths and an optical combining system to produce a single path of increased repetition rate. The Pike et al. reference, however, does not disclose a laser-produced plasma generation apparatus.

The Ozaki et al. reference and the Okazaki et al. reference disclose multiplexing apparatus which comprises a plurality of semiconductor lasers, light-collecting optics and a single multimode optical fiber. There is no disclosure in the Okazaki et al. of temporal-interleaving or a plasma production apparatus. In fact, the Okazaki et al. reference does not even relate to pulsed laser sources.

Likewise, the Munroe et al. reference merely discloses spatial multiplexing and does not disclose temporal interleaving along a common optical path or a plasma production apparatus. The Munroe et al. reference does not even relate to pulsed laser sources.

The Noburu reference, the Kessler reference, and the Yamanaka et al. reference add nothing further and again merely teach multiplexing light sources. The Taylor reference discloses a holographic recording method using a temporal interleaving technique. From Fig. 4 and column 8, line 60, for example, it is clear that the method requires a single laser source 12. Therefore, it does not disclose a laser produced plasma generation apparatus comprising at least two pulsed laser sources.

In fact, none of the cited documents disclose a laser-produced plasma generation apparatus for temporal interleaving along a common output path.

The inventors have recognized the advantages obtained by using the claimed combination of features as a laser-produced plasma production apparatus. More specifically, by providing a laser-produced plasma production apparatus comprising at least two lasers, the inventors have recognized that in order to achieve maximum Extreme Ultra Violet (EUV) emission from the target, it is possible to optimise the peak intensity and the average intensity independently. The peak intensity received at the target occurs when each laser pulse is at its maximum intensity. The average intensity delivered to the target is the time-averaged intensity over the complete train of laser pulses. The peak intensity is established once optimum conversion of EUV radiation is achieved and then the average intensity can then be scaled up to a maximum (see paragraph 0038).

The cited art when considered alone or in combination does not recognise the effect that the claimed combination of features gives rise to when used as a laser-

produced plasma production apparatus. The cited art is not even related to laser-produced plasma, let alone recognizing that it may be beneficial to create a system in which the average and peak intensities can be controlled independently. In particular, there is not even a hint in the cited art of the problems associated with controlling the peak and average intensity delivered to a target in a plasma production apparatus. The inventors have identified this problem and provided a novel solution which cannot be considered obvious in view of the cited art.

Of the references relating to temporal interleaving, the Pike et al. reference does not teach a system having the effect of allowing the peak intensity to be optimized first and then the average intensity scaled up to a maximum. In fact, there is no teaching whatsoever in the Pike et al. reference regarding optimizing the peak and average intensities separately. Likewise, the Taylor reference provides no motivation to optimise these two parameters independently. Neither document is even concerned with laser-generated plasma, let alone the optimum parameters for achieving this. The two documents in combination do not, therefore, arrive at the claimed invention. The inventors have recognized the value in providing a laser-produced plasma system

which allows independent optimization of these parameters and provided a system for achieving this. The claimed invention cannot be considered obvious in view of art which provides no motivation for achieving this.

Accordingly, Applicants believes that Claims 1-6, 8-16, 18, 24, and 26-28 are patentable at this time. These claims remain pending following entry of this Amendment A, and are in condition for allowance at this time. As such, Applicants respectfully requests entry of the present Amendment A and reconsideration of the claims, with an early and favorable decision being solicited. Should the Examiner believe that the prosecution of the application could be expedited, the Examiner is requested to call Applicants' undersigned attorney at the number listed below.

Respectfully submitted:

BY /Leslie S. Miller/
Leslie S. Miller
Attorney for Applicants
Registration No. 30,662

Reinhart Boerner Van Deuren s.c.
1000 North Water Street, Suite 2100
Milwaukee, WI 53202

(414) 298-8321

Customer No. 22922